

Application for FCC Certificate
On Behalf of
Hisense Electric Co., Ltd.

LED LCD TV

Model No.	Serial No.	Brand
LTDN39V77NUS	E1208986-01/02	Hisense
F39V77C	--	

FCC ID : W9HLCDD0023

Prepared For : Hisense Electric Co., Ltd.
No.218 Qianwangang RSoad, Economy & Technology
Development Zone, Qingdao, China

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F12153
Date of Test : Aug 29 – Sep 21, 2012
Date of Report : Sep 23, 2012

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
 Manufacturer : Hisense Electric Co., Ltd.
 Factory : Guangdong Hisense Electronics Co., Ltd.
 EUT Description : LED LCD TV

Model No.	Serial No.	Brand	Power Supply
LTDN39V77NUS	E1208986-01/02	Hisense	120V/60Hz
F39V77C	--		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2011
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1; S/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Aug 29 – Sep 21, 2012 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.


This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.


The test results for EUT's TV functions are contained in No.F12152, a Verification report.

Date of Test : Aug 29 – Sep 21, 2012 Date of Report : Sep 23, 2012

Producer : 
KATHY WANG / Assistant

Review : 
DIO YANG / Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2011 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2011 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LED LCD TV

Type of EUT : Production Pre-product Pro-type

Model No.	Serial No.	Brand
LTDN39V77NUS	E1208986-01/02	Hisense
F39V77C	--	

Note : The above models are all the same except for the different model name.
The LTDN39V77NUS was tested and recorded in the report.

Applicant : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Manufacturer : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Factory : Guangdong Hisense Electronics Co., Ltd.
Jiangmen city Pengjiang District
Hisense Avenue 8

LCD Panel : Manufacturer : CHIMEI INNOLUX
M/N : V390HJ1-L02

Max Resolution : 1024*768@60Hz

D-Sub Cable : Shielded, Detachable, 1.85m,
with two cores on cable

HDMI Cable : Shielded, Detachable, 1.00m,

Power Cord : Unshielded, Undetachable, 1.80m

Remark:

The EUT is a LCD TV which input/output ports as follows:

Back Port:

- (1) One HDMI1 Port : Connected with DVD PLAYER #1
- (2) One HDMI2 Port : Connected with DVD PLAYER #2
- (3) One DIGITAL AUDIO OUT Port : Connected with DVD PLAYER #1
- (4) One PC/DVI Audio In Port : Connected with PC
- (5) One VGA Port : Connected with PC
- (6) One Headphone Port : Connected with Earphone

Side Port:

- (7) One USB Port : Connected with U-Disk
- (8) One component of AV Port : Connected with DVD PLAYER #1
- (9) One component of YPbPr Port : Connected with DVD PLAYER #1
- (10) One component of YPbPr Audio Port : Connected with DVD PLAYER #1
- (11) One ANT/CABLE Port : Connected with ATSC SG / TV SG
- (12) One HDMI3 Port : Connected with PC

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
 Model Number : dx7200MT
 Serial Number : CNG622017W
 Power Cord : Unshielded, Detachable, 1.8m
 Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
 BSMI (R33001) 3C (A000111)
 MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
 Model Number : C3990A
 Serial Number : JPZX020487
 Data Cable : Shielded, detachable, 1.5m
 Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, undetachable ,1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.5 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

2.2.6 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506

2.2.7 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.9 DVD PLAYER #1

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 DVD PLAYER #2

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 U-DISK

Manufacturer : LG
Model Number : 1GB

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.42dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.14 dB (horizontal)
U = 4.28 dB (vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.18 dB (horizontal)
U = 4.26 dB (vertical)

3 CONDUCTED EMISSION TEST

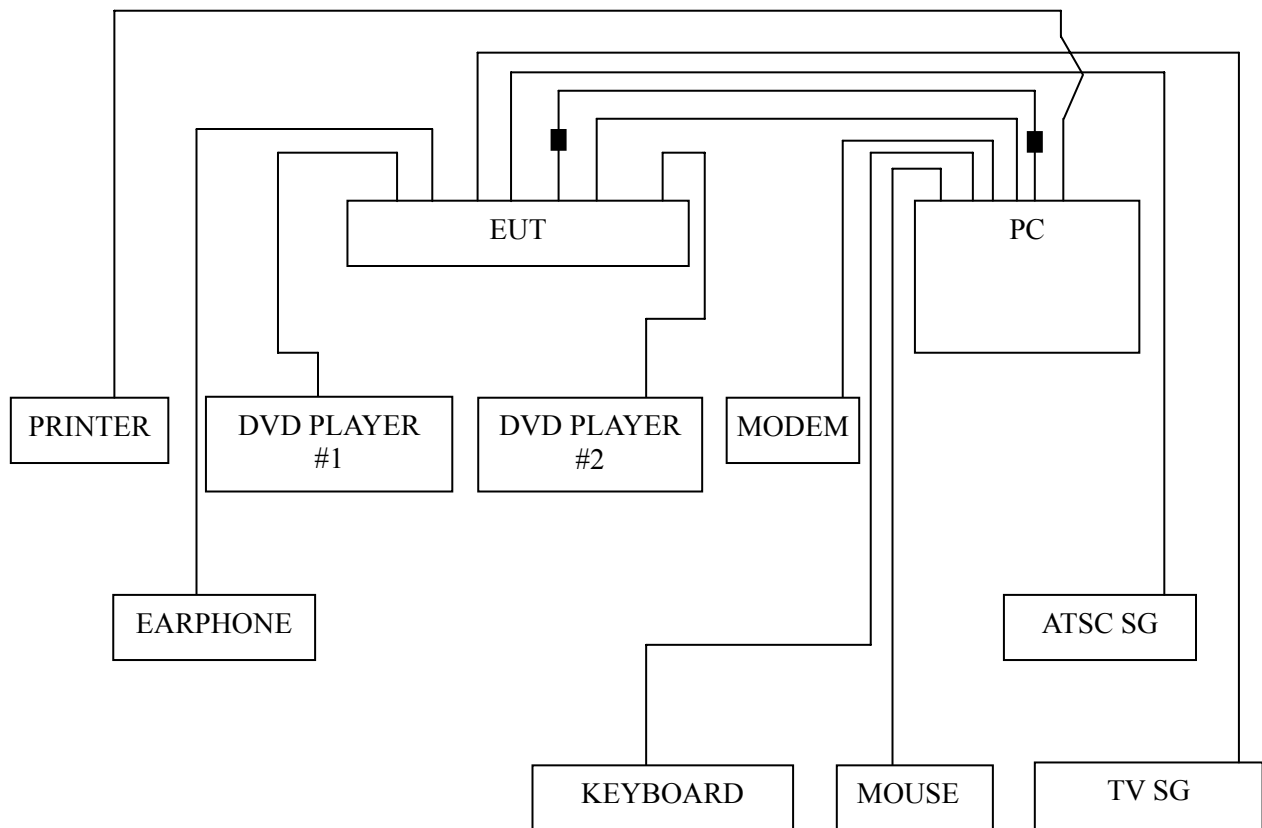
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2012	Mar 22, 2013
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Feb 13, 2012	Feb 13, 2013
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2012	Mar 22, 2013
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2012	Mar 18, 2013
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2012	Mar 22, 2013
6.	Software	Audix	E3	SET00200 9804M592	--	--

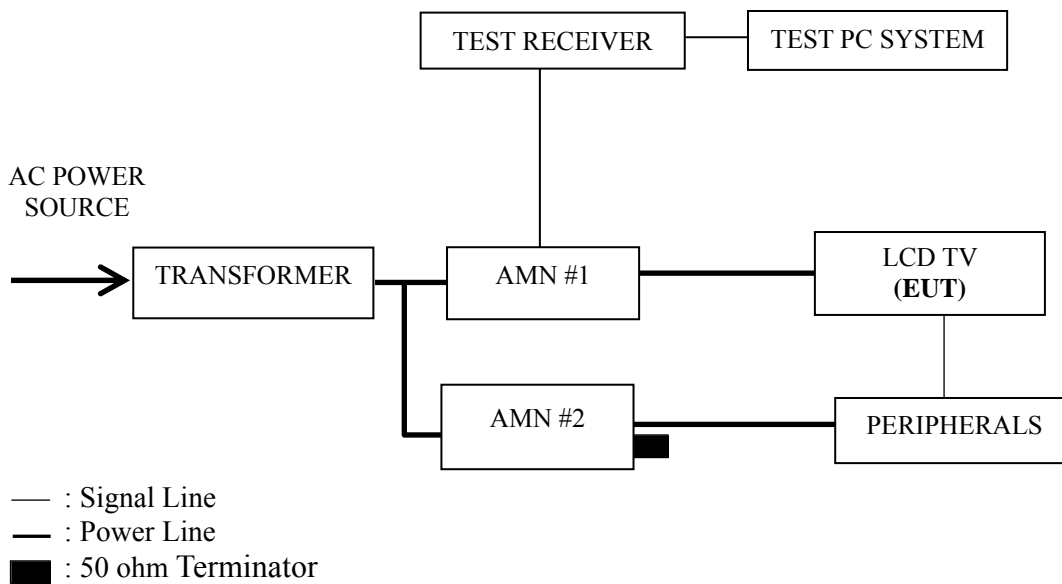
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite core

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
 NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & HDMI Input).

3.5.5 In USB Play mode, set the EUT play digital media from U-Disk.

3.5.6 Repeat above procedure 3.5.5 for difference test mode.

3.5.7 The other peripherals devices were driven and operated during the test.

3.5.8 The test modes are as follows:

Test Mode
D-Sub 1024*768@60Hz
HDMI 1024*768@60Hz
D-Sub 800*600@60Hz
D-Sub 640*480@60Hz
USB Play

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
D-Sub 1024*768@60Hz	P13
HDMI 1024*768@60Hz	P14
D-Sub 800*600@60Hz	P15
D-Sub 640*480@60Hz	P16
USB Play	P17

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission is detected at 6.420 MHz (Average Value) with corrected signal level of 38.29 dB (μ V) (limit is 50.00 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 48%RH

Serial No. : E1208986-01/02 Date of Test : Aug 29, 2012

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.150	43.50	0.23	43.73	65.99	22.26	QP	
	0.385	43.15	0.33	43.48	58.17	14.69		
	1.324	35.81	0.34	36.15	56.00	19.85		
	2.033	34.32	0.39	34.71	56.00	21.29		
	5.774	37.95	0.55	38.50	60.00	21.50		
	19.950	38.90	0.92	39.82	60.00	20.18	AV	
	0.150	33.64	0.23	33.87	55.99	22.12		
	0.385	33.65	0.33	33.98	48.17	14.19		
	1.324	25.68	0.34	26.02	46.00	19.98		
	2.033	24.30	0.39	24.69	46.00	21.31		
5.774	27.64	0.55	28.19	50.00	21.81	QP		
19.950	28.60	0.92	29.52	50.00	20.48			
0.150	42.98	0.13	43.11	65.98	22.87			
0.389	43.15	0.16	43.31	58.08	14.77			
0.963	35.07	0.22	35.29	56.00	20.71			
Neutral	4.672	32.91	0.42	33.33	56.00	22.67	QP	
	6.285	37.27	0.53	37.80	60.00	22.20		
	19.950	38.01	0.82	38.83	60.00	21.17		
	0.150	32.10	0.13	32.23	55.98	23.75		AV
	0.389	33.90	0.16	34.06	48.08	14.02		
	0.963	25.60	0.22	25.82	46.00	20.18		
	4.672	22.59	0.42	23.01	46.00	22.99		
	6.285	27.68	0.53	28.21	50.00	21.79		
	19.950	28.60	0.82	29.42	50.00	20.58		

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 48%RH

Serial No. : E1208986-01/02 Date of Test : Aug 29, 2012

Test Mode : HDMI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.150	43.05	0.23	43.28	65.99	22.71	QP	
	0.389	43.62	0.33	43.95	58.08	14.13		
	1.160	36.97	0.32	37.29	56.00	18.71		
	4.672	35.57	0.50	36.07	56.00	19.93		
	6.186	38.22	0.59	38.81	60.00	21.19		
	19.950	37.48	0.92	38.40	60.00	21.60	AV	
	0.150	33.60	0.23	33.83	55.99	22.16		
	0.389	33.60	0.33	33.93	48.08	14.15		
	1.160	26.31	0.32	26.63	46.00	19.37		
	4.672	25.64	0.50	26.14	46.00	19.86		
6.186	28.60	0.59	29.19	50.00	20.81	AV		
19.950	27.64	0.92	28.56	50.00	21.44			
Neutral	0.150	43.02	0.13	43.15	65.98		22.83	QP
	0.389	43.14	0.16	43.30	58.08		14.78	
	1.082	34.48	0.22	34.70	56.00		21.30	
	4.407	33.04	0.40	33.44	56.00	22.56		
	6.285	38.18	0.53	38.71	60.00	21.29		
	20.377	38.10	0.82	38.92	60.00	21.08	AV	
	0.150	33.50	0.13	33.63	55.98	22.35		
	0.389	33.80	0.16	33.96	48.08	14.12		
	1.082	24.50	0.22	24.72	46.00	21.28		
	4.407	23.51	0.40	23.91	46.00	22.09		
6.285	28.79	0.53	29.32	50.00	20.68	AV		
20.377	28.91	0.82	29.73	50.00	20.27			

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 48%RH

Serial No. : E1208986-01/02 Date of Test : Aug 29, 2012

Test Mode : D-Sub 800*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.151	43.14	0.23	43.37	65.93	22.56	QP
	0.389	43.75	0.33	44.08	58.08	14.00	
	1.352	35.73	0.34	36.07	56.00	19.93	
	1.680	35.02	0.37	35.39	56.00	20.61	
	6.121	39.23	0.59	39.82	60.00	20.18	
	20.377	37.48	0.92	38.40	60.00	21.60	
	0.151	33.60	0.23	33.83	55.93	22.10	AV
	0.389	33.50	0.33	33.83	48.08	14.25	
	1.352	25.40	0.34	25.74	46.00	20.26	
	1.680	25.81	0.37	26.18	46.00	19.82	
	6.121	29.60	0.59	30.19	50.00	19.81	
	20.377	27.61	0.92	28.53	50.00	21.47	
Neutral	0.150	42.69	0.13	42.82	65.99	23.17	QP
	0.389	43.87	0.16	44.03	58.08	14.05	
	0.963	34.65	0.22	34.87	56.00	21.13	
	3.943	32.04	0.39	32.43	56.00	23.57	
	6.420	38.20	0.55	38.75	60.00	21.25	
	19.950	38.25	0.82	39.07	60.00	20.93	
	0.150	32.30	0.13	32.43	55.99	23.56	AV
	0.389	33.60	0.16	33.76	48.08	14.32	
	0.963	24.64	0.22	24.86	46.00	21.14	
	3.943	22.64	0.39	23.03	46.00	22.97	
	6.420	28.39	0.55	28.94	50.00	21.06	
	19.950	28.40	0.82	29.22	50.00	20.78	

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 48%RH

Serial No. : E1208986-01/02 Date of Test : Aug 29, 2012

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	43.24	0.23	43.47	65.99	22.52	QP
	0.389	42.98	0.33	43.31	58.08	14.77	
	1.249	36.32	0.34	36.66	56.00	19.34	
	2.707	34.52	0.40	34.92	56.00	21.08	
	6.420	37.71	0.62	38.33	60.00	21.67	
	20.814	37.26	0.94	38.20	60.00	21.80	
	0.150	33.20	0.23	33.43	55.99	22.56	AV
	0.389	32.36	0.33	32.69	48.08	15.39	
	1.249	26.79	0.34	27.13	46.00	18.87	
	2.707	24.99	0.40	25.39	46.00	20.61	
	6.420	37.67	0.62	38.29	50.00	11.71	
	20.814	27.64	0.94	28.58	50.00	21.42	
Neutral	0.150	42.86	0.13	42.99	65.99	23.00	QP
	0.389	43.95	0.16	44.11	58.08	13.97	
	1.262	34.99	0.22	35.21	56.00	20.79	
	4.454	32.99	0.41	33.40	56.00	22.60	
	6.285	37.42	0.53	37.95	60.00	22.05	
	20.162	38.26	0.82	39.08	60.00	20.92	
	0.150	32.56	0.13	32.69	55.99	23.30	AV
	0.389	33.64	0.16	33.80	48.08	14.28	
	1.262	24.10	0.22	24.32	46.00	21.68	
	4.454	22.64	0.41	23.05	46.00	22.95	
	6.285	27.60	0.53	28.13	50.00	21.87	
	20.162	28.64	0.82	29.46	50.00	20.54	

TEST ENGINEER: L V Y L V

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 48%RH

Serial No. : E1208986-01/02 Date of Test : Aug 29, 2012

Test Mode : USB Play

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.151	42.80	0.23	43.03	65.93	22.90	QP
	0.393	43.54	0.33	43.87	57.99	14.12	
	1.249	35.49	0.34	35.83	56.00	20.17	
	4.672	35.00	0.50	35.50	56.00	20.50	
	6.420	37.60	0.62	38.22	60.00	21.78	
	19.224	37.93	0.92	38.85	60.00	21.15	
	0.151	31.85	0.23	32.08	55.93	23.85	AV
	0.393	33.40	0.33	33.73	47.99	14.26	
	1.249	25.89	0.34	26.23	46.00	19.77	
	4.672	24.50	0.50	25.00	46.00	21.00	
	6.420	27.39	0.62	28.01	50.00	21.99	
	19.224	28.64	0.92	29.56	50.00	20.44	
Neutral	0.150	43.30	0.13	43.43	65.99	22.56	QP
	0.389	43.18	0.16	43.34	58.08	14.74	
	1.262	35.22	0.22	35.44	56.00	20.56	
	3.901	32.75	0.39	33.14	56.00	22.86	
	6.420	38.90	0.55	39.45	60.00	20.55	
	20.377	37.89	0.82	38.71	60.00	21.29	
	0.150	33.60	0.13	33.73	55.99	22.26	AV
	0.389	33.10	0.16	33.26	48.08	14.82	
	1.262	25.60	0.22	25.82	46.00	20.18	
	3.901	22.40	0.39	22.79	46.00	23.21	
	6.420	28.59	0.55	29.14	50.00	20.86	
	20.377	26.81	0.82	27.63	50.00	22.37	

TEST ENGINEER: LUY LV

4 RADIATED EMISSION TEST

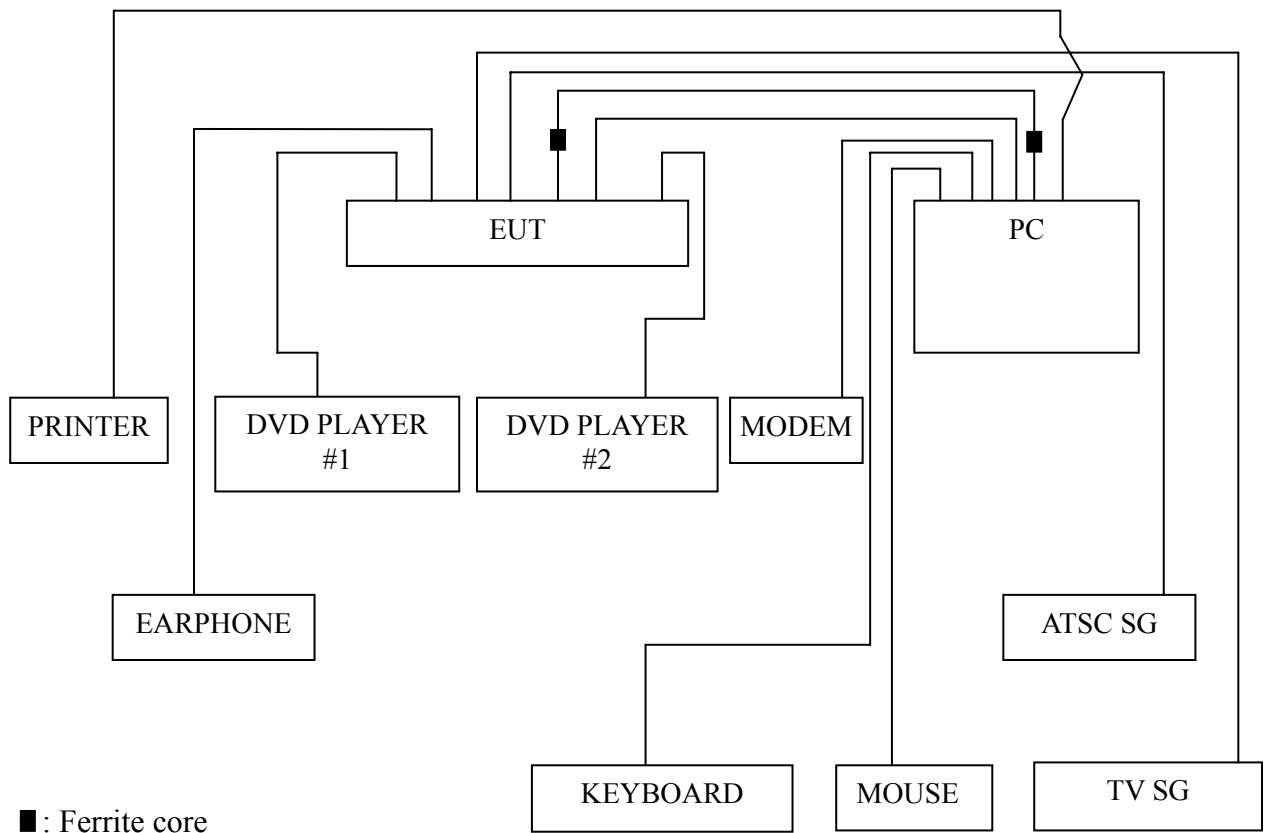
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

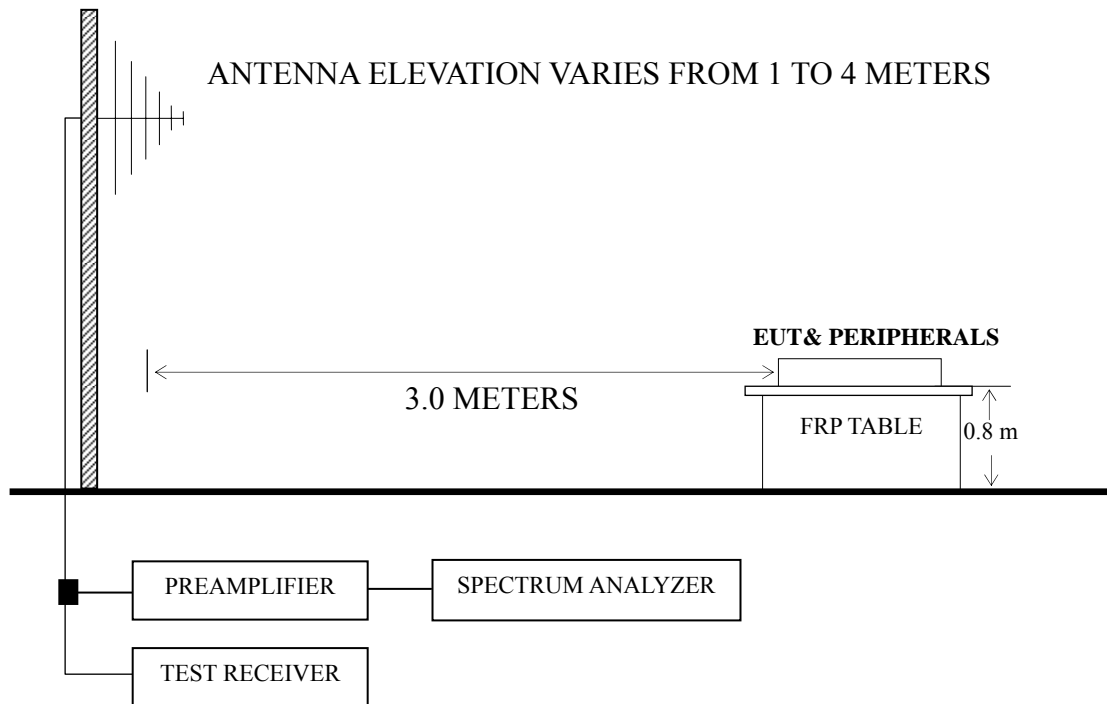
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 22, 2012	Mar 22, 2013
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2012	Mar 18, 2013
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2011	Dec 01, 2012
4.	Spectrum	Agilent	E7405A	MY45106600	Mar 22, 2012	Mar 22, 2013
5.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2012	Mar 18, 2013
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V}/\text{m}$)	dB ($\mu\text{V}/\text{m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V}/\text{m}$) = 20 log Emission Level ($\mu\text{V}/\text{m}$)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector.

NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT.

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The I.F. bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
D-Sub 1024*768@60Hz	P21
HDMI 1024*768@60Hz	P22
D-Sub 800*600@60Hz	P23
D-Sub 640*480@60Hz	P24
USB Play	P25

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – All readings are Quasi-Peak values.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 303.000 MHz with corrected signal level of 45.66 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.40 m height and the turntable was at 239°. The worst emission at vertical polarization was detected at 872.930 MHz with corrected signal level of 42.47 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.20 m height and the turntable was at 123°.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 60%RH

Serial No. : E1208986-01/02 Date of Test : Sep 21, 2012

Test Mode : D-Sub 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	87.230	21.90	10.88	1.70	34.48	40.00	5.52
	135.730	23.19	10.71	2.14	36.04	43.50	7.46
	191.990	24.55	9.87	2.40	36.82	43.50	6.68
	240.490	26.36	11.55	2.58	40.49	46.00	5.51
	303.000	29.10	13.80	2.76	45.66	46.00	0.34
	473.290	19.60	17.29	3.19	40.08	46.00	5.92
Vertical	87.230	23.52	10.88	1.70	36.10	40.00	3.90
	174.530	26.50	10.06	2.33	38.89	43.50	4.61
	240.490	25.24	11.55	2.58	39.37	46.00	6.63
	368.530	23.29	15.61	2.92	41.82	46.00	4.18
	741.980	16.64	19.98	3.78	40.40	46.00	5.60
	872.930	17.50	20.37	4.60	42.47	46.00	3.53

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 60%RH

Serial No. : E1208986-01/02 Date of Test : Sep 21, 2012

Test Mode : HDMI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	43.580	21.93	10.86	0.89	33.68	40.00	6.32
	87.230	22.79	10.88	1.70	35.37	40.00	4.63
	133.790	26.38	10.74	2.12	39.24	43.50	4.26
	173.560	27.32	10.07	2.33	39.72	43.50	3.78
	238.330	25.01	11.41	2.57	38.99	46.00	7.01
	303.540	25.32	13.80	2.77	41.89	46.00	4.11
Vertical	132.820	25.83	10.77	2.12	38.72	43.50	4.78
	190.050	28.50	9.89	2.39	40.78	43.50	2.72
	303.540	28.46	13.80	2.77	45.03	46.00	0.97
	472.320	23.44	17.27	3.19	43.90	46.00	2.10
	669.230	21.45	19.12	3.62	44.19	46.00	1.81
	850.620	18.09	20.45	4.45	42.99	46.00	3.01

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 60%RH

Serial No. : E1208986-01/02 Date of Test : Sep 21, 2012

Test Mode : D-Sub 800*600@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	43.580	26.25	10.86	0.89	38.00	40.00	2.00
	80.440	24.63	10.56	1.59	36.78	40.00	3.22
	87.230	25.62	10.88	1.70	38.20	40.00	1.80
	173.560	26.63	10.07	2.33	39.03	43.50	4.47
	217.210	27.58	10.48	2.50	40.56	46.00	5.44
	742.950	19.90	19.98	3.78	43.66	46.00	2.34
Vertical	76.560	24.12	10.34	1.54	36.00	40.00	4.00
	136.700	25.60	10.69	2.15	38.44	43.50	5.06
	173.560	27.70	10.07	2.33	40.10	43.50	3.40
	238.550	25.21	11.46	2.57	39.24	46.00	6.76
	368.530	22.76	15.61	2.92	41.29	46.00	4.71
	742.950	20.17	19.98	3.78	43.93	46.00	2.07

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 60%RH

Serial No. : E1208986-01/02 Date of Test : Sep 21, 2012

Test Mode : D-Sub 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	87.230	25.02	10.88	1.70	37.60	40.00	2.40
	140.580	26.37	10.60	2.18	39.15	43.50	4.35
	173.560	29.10	10.07	2.33	41.50	43.50	2.00
	284.140	27.31	13.24	2.71	43.26	46.00	2.74
	473.290	19.86	17.29	3.19	40.34	46.00	5.66
	593.570	19.45	18.17	3.45	41.07	46.00	4.93
Vertical	87.230	23.97	10.88	1.70	36.55	40.00	3.45
	137.670	26.05	10.66	2.15	38.86	43.50	4.64
	217.210	28.07	10.48	2.50	41.05	46.00	4.95
	238.550	30.31	11.46	2.57	44.34	46.00	1.66
	284.140	27.47	13.24	2.71	43.42	46.00	2.58
	816.670	18.63	20.55	4.11	43.29	46.00	2.71

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN39V77NUS Humidity : 60%RH

Serial No. : E1208986-01/02 Date of Test : Sep 21, 2012

Test Mode : USB Play

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	132.820	25.24	10.77	2.12	38.13	43.50	5.37
	173.560	30.10	10.07	2.33	42.50	43.50	1.00
	181.320	24.64	9.98	2.36	36.98	43.50	6.52
	238.550	28.09	11.46	2.57	42.12	46.00	3.88
	303.540	24.63	13.80	2.77	41.20	46.00	4.80
	369.500	22.87	15.64	2.92	41.43	46.00	4.57
Vertical	87.230	18.63	10.88	1.70	31.21	40.00	8.79
	131.850	22.94	10.78	2.11	35.83	43.50	7.67
	347.190	24.86	15.04	2.88	42.78	46.00	3.22
	433.520	20.48	16.74	3.08	40.30	46.00	5.70
	456.800	20.66	17.06	3.15	40.87	46.00	5.13
	742.950	20.27	19.98	3.78	44.03	46.00	1.97

TEST ENGINEER: RAVEN JIN

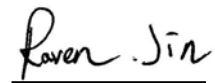
5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Ferrite Core	ZCAT2132-1130\ROH	FEELUX	See Internal Photos Figure 14
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
		JIANGSU LETTALL ELECTRONICS CO., LTD.	
Gasket	10×8×35\ROH	JOINSET	See Internal Photos Figure 15

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:



(RAVEN JIN)

6 DEVIATION TO TEST SPECIFICATIONS

None.